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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/759,108      | 01/20/2004  | Alexander T. Schwarm | 008019              | 6943             |

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 Patent Counsel MS/2061  
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 EXAMINER

JARRETT, RYAN A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2125     |              |

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                                       |  |
|------------------------------|-------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/759,108 | Applicant(s)<br>SCHWARM, ALEXANDER T. |  |
|                              | Examiner<br>Ryan A. Jarrett   | Art Unit<br>2125                      |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 17 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10, 23, and 32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitation "the user selected parameters" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 10 should depend from claim 9 instead of claim 1.

Claim 23 recites the limitation "the user selected parameters" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claim 23 should depend from claim 22 instead of claim 16.

Claim 32 recites the limitation "the user selected parameters" in line 3. There is insufficient antecedent basis for this limitation in the claim. Claim 32 should depend from claim 31 instead of claim 25.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4, 6-13, 16, 17, 19-26, 28-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Goldman et al. US 2002/0128805.

Goldman discloses a method of automation performed on a semiconductor manufacturing tool, comprising the acts of: (a) automatically running a set of designed experiments on the tool (e.g., [0071]-[0083]); (b) collecting data resulting from running the experiments (e.g., [0083]); (c) creating a model based on the collected data (e.g., [0084]-[0089]); and (d) using the model to control the tool (e.g., [0090]-[0091]);

the method of claim 1, wherein act (b) is performed automatically (e.g., [0083]);

the method of claim 1, wherein act (c) is performed automatically (e.g., [0084]-[0089]);

the method of claim 1, further including automatically creating the set of designed experiments for the tool (e.g., [0071]-[0082]);

the method of claim 1, further including at least one of: importing data collected by running at least one experiment on an external system; and importing data collected during at least one previously run experiment (e.g., [0119]);

the method of claim 6, further including: automatically creating a model based on the imported data and user input (e.g., [0084]-[0089], [0120]);

the method of claim 6, further including: automatically creating a model based on the, collected data, the imported data and user input (e.g., [0084]-[0089], [0120]);

the method of claim 1, further including: allowing a user to interactively select one or more parameters to be adjusted between the experiments of the designed set of experiments and select one or more set of data to be collected (e.g., [0071]-[0082]);

the method of claim 9, further including: automatically generating the design set of experiments based on the user selected parameters and set of data to be collected (e.g., [0071]-[0082]);

the method of claim 1, further including: collecting the data based on a wafer-by-wafer basis (e.g., [0092]-[0099]).

A method of automation performed on a tool to manufacture devices, comprising the acts of: (a) automatically creating a set of designed experiments (e.g., [0071]-[0082]); (b) automatically running the set of designed experiments on the tool (e.g., [0083]); (c) automatically collecting data resulting from running the experiments (e.g., [0083]), wherein the data are collected on a wafer-by-wafer basis (e.g., [0092]-[0099]);

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(d) automatically creating a model based on the collected data (e.g., [0084]-[0089]); and  
(e) using the model to control the tool (e.g., [0090]-[0091]).

A method of automation performed on a tool to manufacture devices, comprising the acts of: (a) automatically running a set of designed experiments on the tool (e.g., [0071]-[0083]; (b) automatically collecting data resulting from running the experiments (e.g., [0083]); (c) creating a model based on the collected data and imported data (e.g., [0084]-[0089]); and (d) using the model to control the tool (e.g., [0090]-[0091]).

A system of automating a semiconductor manufacturing tool, comprising: (a) a DOE system configured to automatically create a designed set of experiments for the tool (e.g., [0071]-[0082]); (b) a controller configured to automatically run the created set of experiments on the tool and collect data resulting from running the experiments (e.g., [0083]); and (c) a modeling environment configured to create a model based on the collected data (e.g., [0084]-[0089]), wherein the controller is further configured to control the tool based on the created model (e.g., [0090]-[0091]), and wherein the DOE system, controller and modeling environment are integrated with each other (e.g., [0071]-[0091]);

the system of claim 16, wherein the DOE system is further configured to create automatically the set of designed experiments for the tool (e.g., [0071]-[0082]);

the system of claim 16, wherein the DOE system is further configured to import at least one of data collected by running at least one experiment on an external system and data collected during at least one previously run experiment (e.g., [0119]);

the system of claim 19, wherein the DOE system is further configured to create a model based on the imported data and user input (e.g., [0084]-[0089], [0120]);

the system of claim 19, wherein the DOE system is further configured to create a model based on the collected data, the imported data, and user input (e.g., [0084]-[0089], [0120]);

the system of claim 16, wherein the DOE system is further configured to allow a user to interactively select one or more parameters to be adjusted between the experiments of the designed set of experiments and select one or more set of data to be collected (e.g., [0071]-[0082]);

the system of claim 22, wherein the DOE system is further configured to generate automatically the design set of experiments based on the user selected parameters and set of data to be collected (e.g., [0071]-[0082]);

the system of claim 16, wherein the controller is further configured to collect the data on a wafer-by-wafer basis (e.g., [0092]-[0099]).

A computer readable medium for storing instructions being executed by one or more computers, the instructions directing the one or more computers for automatically generating design of experiment, the instructions comprising implementation of the acts of: (a) automatically running a set of designed experiments on the tool (e.g., [0071]-[0083]); (b) automatically collecting data resulting from running the experiments (e.g., [0083]); (c) creating a model based on the collected data (e.g., [0084]-[0089]); and (d) using the model to control the tool (e.g., [0090]-[0091]);

the medium of claim 25, further including the instructions for implementing the act of: automatically creating the set of designed experiments for the tool (e.g., [0071]-[0083]);

the medium of claim 25, further including the instructions for implementing at least one act of: importing data collected by running at least one experiment on an external system; and importing data collected during at least one previously run experiment (e.g., [0119]);

the medium of claim 25, further comprising the instructions for implementing the act of: automatically creating a model based on the imported data and user input (e.g., [0084]-[0089], [0120]);

the medium of claim 25, further including the instructions for implementing the act of: automatically creating a model based on user input, the collected data and the imported data (e.g., [0084]-[0089], [0120]);

the medium of claim 25, further including the instructions for implementing the act of allowing a user to interactively select one or more parameters to be adjusted between the experiments of the designed set of experiments and select one or more set of data to be collected (e.g., [0071]-[0083]);

the medium of claim 31, further including the instructions for implementing the act of: automatically generating the design set of experiments based on the user selected parameters and set of data to be collected (e.g., [0071]-[0083]);

the medium of claim 25, further including the instructions for implementing the act of: collecting the data based on a wafer-by-wafer basis (e.g., [0092]-[0099]).



***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5, 14, 15, 18, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldman et al. as applied to claims 1, 13, 16, and 25 above, and further in view of Daft et al. US 2003/0154062.

Goldman does not appear to explicitly disclose importing one or more designed experiments from an external system. However, Daft discloses a system and method for statistical design of an ultrasound probe and imager system, and an associated graphical user interface for selecting input parameters to be used in an ultrasound simulation. The system comprises a DOE controller that can automatically import the DOE data and generate transfer functions from the simulation-based data (e.g., [0046]). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Goldman et al. with Daft et al. in order to make the system of Goldman et al. more versatile by giving the controller the capability to import experimental data generated by a separate, non-integrated system.

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**Conclusion**

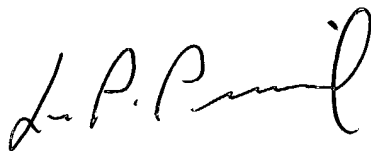
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan A. Jarrett whose telephone number is (703) 308-4739. The examiner can normally be reached on 10:00-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (703) 308-0538. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ryan A. Jarrett  
Examiner  
Art Unit 2125

9/24/04



LEO PICARD  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100